REMARKS

Brief Summary of the Prosecution

In the Office Action dated September 7, 2000, claims 1-11, 13-17, 25 and 26 were rejected under 35 U.S.C. §112(1). Claims 2-11, 13-17, 25 and 26 were rejected under 35 U.S.C. §112, second paragraph. Claims 11 and 13-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Shimizu et al. In the present Amendment, claims 1, 2, 4, 7-11, 14, 15, 25 and 26 have been amended. Support can be found in the specification for any amendments to existing claims. Thus, no new matter is added.

Claim to Right of Priority

The Official Action alleged that Applicants have not complied with 35 U.S.C. §119(e) sufficient to obtain benefit of an earlier filing date. Applicants have amended the specification as required to include a specific reference to the prior application upon which priority is based. Withdrawal of rejection is respectfully requested.

Rejections under 35 U.S.C. §112(1)

Claims 1-11, 13-17, 25 and 26 were rejected under 35 U.S.C. §112, first paragraph. In particular, the Office Action alleged that it is not clear from the specification that the Applicant was in possession of the invention as claimed.

The Applicants traverse this rejection as it applies to claims 1-11, 13-17, 25 and 26 as presently amended. The requirement under Section 112, first paragraph, that the specification contain "a written description of the invention" raises a factual issue:

addressed, in any way, the information that [applicants] invented that specific [claimed invention]?" Vas-Cath, 19 USPQ2d at 1115 (citing In re Rushchig, 154 USPQ 118, 123 (CCPA 1967)) (emphasis added). Under the uniform standard for determining compliance with that requirement, the U. S. Court of Appeals for the Federal Circuit has stated unequivocally, the applicant does not have to describe exactly the subject matter claimed. The description must be sufficient merely to allow a person of ordinary skill in the art to recognize that the applicant invented what is claimed. Vas-Cath, 19 USPQ2d at 1116 (citing In re Gosteli, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989)).

The PTO Board of Patent Appeals and Interferences has also applied the uniform standard. The Board, in In re Hold, 19 USPQ2d 1211 (Bd. Pat. App. & Inter. 1991), reversed a rejection under 35 U.S.C. §112(1) wherein the examiner contended that the specification failed to provide a written description adequate to support the claims. The Board stated, "It is well established that the invention claimed need not be described *ipsis verbis* in order to satisfy the disclosure requirement of Section 112." Id. at 1213.

The disclosure of the present application is clearly sufficient to convey to a person of ordinary skill in the art that the applicants invented the claimed subject matter. Section 112, first paragraph, requires nothing more. In particular, the disclosure of SEQ ID NO:1 combined with hybridization protocols (page 23, lines 16-33 and page 14, lines 1-31), chromosomal walking procedures (page 23, line 34 through page 24, line 18), screening and identification of homologs from numerous *M. grisea* stains (page 30, lines 5-15), and procedures to examine function as described in Examples 3 and 4 (pages 30-31) provide ample evidence that the applicants invented the entire subject matter of claim 1. Withdrawal of rejection is respectfully requested.

isolated nucleic acid molecule encoding SEQ ID NO:4. The Office Action appeared to base the rejection on the premise that "Applicant has provided no guidance with respect to what hybridization/wash conditions or what PCR reaction conditions would allow specific isolation of additional functionally related genes.

The Applicants respectfully disagree with this allegation. The specification is enabling for one of ordinary skill in the art to make and use the invention as claimed in claim 1, as amended. Specifically, one of ordinary skill in the art would know how to isolate a segment approximately 1 kb in size from chromosome 1 of *Magnaporthe grisea*. Further, the ordinary artisan would know how to use detailed examples in the specification to determine if this 1kb segment confers rice cultivar CO39-specific avirulence to fungal plant pathogens. With respect to claim 2, detailed disclosure of hybridization and wash conditions and corresponding formulas are provided in the specification on page 14, lines 1-31, and on page 23, lines 16-33.

Thus, one of ordinary skill in the art would be easily able to make and use the invention as recited in amended claim 1 and claims dependent upon claim 1 without undue experimentation. Withdrawal of rejection is respectfully requested.

Claims 7, 8 and 15 were rejected for allegedly reading on mammalian cells *in vivo*. Claims 7 and 14 have been amended to recite, "A non-mammalian cell..." Thus, amended claims 7, 8, and 15 do not read on mammalian cells *in vivo*. Further, the process of transforming insect cells is well known for use with DNA of any kind. As set forth in MPEP §2164.01, "A patent need not teach, and preferably omits, what is well known in the art." (citing In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). One of ordinary skill in the art would be able to transform an insect cell with the DNA of the present invention. Clontech, for example, sells an entire baculovirus expression system kit, a rapid titer kit, associated viral DNA, and even

to transform the DNA of the present invention into an insect cell without undue experimentation. Thus, claims 7, 8, and 15 are enabled by the specification combined with the state of the art. Withdrawal of rejection is respectfully requested.

Rejections under 35 U.S.C. §112(2)

Claims 2-11, 13-17, 25 and 26 were rejected under 35 U.S.C. §112, second paragraph as being allegedly indefinite.

Claim 2 was rejected as being indefinite for reciting the name, "AVR1-CO39." In particular, the Office Action alleged that AVR1-CO39 does not clearly identify the claimed gene and does not set forth the metes and bounds of the claimed invention.

Claim 2, as amended, does not recite, "AVR1-CO39." Thus, this rejection is rendered moot. Support for this amendment may be found in the specification from page 10, line 20, through page 11, line 22, and page 12, lines 5-10. Withdrawal of rejection is respectfully requested.

Claim 4 was rejected as indefinite for reciting the term, "having the features of a polypeptide." Claim 4 has been amended to recite, "a polypeptide comprising a sequence". Withdrawal of rejection is respectfully requested.

Claim 6 was rejected as being allegedly indefinite for reciting a vector, when according to the Office Action, a vector is a circular piece of DNA and "is it not known how a recombinant DNA can comprise both a vector and another nucleic acid molecule and how the vector and nucleic acid molecule are attached to one another."

The Applicants respectfully traverse this rejection as it applies to claim 6. The procedure for operably linking DNA sequences in vectors is routine in the art and well understood. As is also understood in the art, a vector need not necessarily be circular in

Valley, CA, p262, copy enclosed), a vector is "a DNA molecule that can replicate in an appropriate host cell," and "any extrachromosomal small genome (like those of plasmids, phage and viruses) is, in principle, a potential vector." Not all viruses or phage are circular in form. However, even for vectors that are circular, such as plasmids, the Applicants assert that the procedure for operably linking recombinant DNA to vectors is routine to one of ordinary skill in the art. For example, Sambrook, Molecular Cloning, A Laboratory Manual, provides an entire chapter on cloning DNA into plasmid vectors (see Volume 1, chapter 1, copy of relevant selections enclosed). Thus, claim 6 is sufficiently definite in view of the state of the art and description of "operably linked" on page 9, lines 5-13. Withdrawal of rejection is respectfully requested.

Claim 8 was rejected for reciting "cell" at line 1 but reciting "cells" at lines 2-3. Applicants have amended claim 8 to recite, "The cell of claim 7, wherein said cell is either bacterial, fungal, insect, or plant." Withdrawal of rejection is respectfully requested.

Claims 9 and 10 were rejected for allegedly lacking antecedent basis for the term, "transformed cell." Applicants point out that claim 7 recites "A cell transformed..." thus providing adequate antecedent basis for claims 9 and 10. Nevertheless, claims 9 and 10 have been amended to no longer recite, "a transformed cell." Withdrawal of rejection is respectfully requested.

Claim 11 was rejected for reciting the term, "substantially the same." Claim 11 has been amended such that the term, "substantially the same" no longer occurs. Accordingly, withdrawal of rejection is respectfully requested.

Claim 15 was rejected for reciting "cell" at line 1 but reciting "cells" at lines 2-3. Applicants have amended claim 15 to recite, "The cell of claim 14, wherein said cell

is either bacterial, yeast, insect or plant." Withdrawal of rejection is respectfully requested.

Claim 25 was rejected as indefinite for reciting the phrase "effective to confer." Claim 25 has been amended as required by the Examiner to recite, "which confers." Withdrawal of rejection is respectfully requested.

Claim 26 was rejected for being dependent on cancelled claim 24 and for reciting the term, "functional equivalent." Claim 26 has been amended to be dependent on claim 25 and to recite, "or an allelic variant thereof." Claim 26 has also been amended to recite, "the amino acid sequence of SEQ ID NO:4." The amino acid sequence of SEQ ID NO:4 is essentially the same subject matter as "expresses ORF3 of SEQ ID NO:1." Support can be found in the specification on page 10, lines 25-29, and in disclosure of SEQ ID NO:1 and SEQ ID NO:4. Withdrawal of rejection is respectfully requested.

Rejections under 35 U.S.C. §102(b)

Claims 11 and 13-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Shimizu et al. The Office Action alleged that Shimizu et al. discloses an isolated nucleic acid molecule which has part of SEQ ID NO:1, which hybridizes with part of SEQ ID NO:1, or which encodes part of any of SEQ ID NO:2-8. Further, the Office Action alleged that Shimizu et al. discloses a recombinant DNA comprising the nucleic acid molecule and an *E. coli* host cell transformed with the nucleic acid molecule.

Applicants traverse this rejection. A claim is anticipated by a reference only if each and every element of the claim is found, either expressly or inherently, in that reference. *MPEP 2131*. Moreover, the identical invention must be shown in as

sequence or sequences in Shimizu et al. formed the basis of this rejection. Therefore, Applicants assume that this rejection was based on recitation of the language "or part of" in instant claim 11.

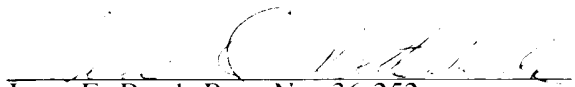
Claim 11 as amended no longer recites the term, "or part of." Abiding by these standards, the Shimizu et al. reference clearly does not anticipate the invention as claimed in claims 11 as amended and therefore claims 13-16, which are dependent on claim 11. Withdrawal of rejection is respectfully requested.

Summary

In view of the foregoing amendments and remarks, the Applicants submit that this application is in condition for allowance and respectfully request early and favorable notification to that effect. If it would expedite prosecution of this application, the Examiner is invited to confer with Applicants' undersigned attorney.

The Applicants reserve the right to prosecute, in one or more divisional or continuation applications, the claims as originally filed and all other claims supported by the specification.

Respectfully Submitted,



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IN THE CLAIMS: **(Version with markings to show changes made)**

1. (Amended) An isolated nucleic acid molecule from *Magnaporthe grisea* comprising a segment of chromosome 1 approximately 1 kb in size and containing at least one open reading frame, the segment conferring [that confers] rice cultivar CO39-specific avirulence to fungal plant pathogens that contain the nucleic acid.

2. (Amended) The nucleic acid molecule of claim 1, having a nucleotide sequence at least 60 % identical to SEQ ID NO:1, the identity being calculated by hybridization with SEQ ID NO:1 under conditions derived from a formula of:

$T_m = 81.5°C + 16.6\text{Log}[Na+] + 0.41(\%\ G+C) - 0.63\ (\%$ formamide) - 600/#bp in duplex [which is AVR1-CO39].

4. (Amended) The nucleic acid molecule of claim 1, which encodes a polypeptide [having the features of a polypeptide] comprising a sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7 and SEQ ID NO:8.

7. (Amended) A non-mammalian cell transformed with the recombinant DNA molecule of claim 6.

8. (Amended) The cell of claim 7, wherein said cell is either [selected from the group consisting of] bacterial [cells], fungal [cells], insect, or [cells and] plant [cells].

9. (Amended) The [transformed] cell of claim 8, which is an

10. (Amended) A transgenic plant regenerated from the [transformed] cell of claim 8.

11. (Amended) An isolated nucleic acid molecule comprising [having] a sequence selected from the group consisting of:

a) [part or all of] SEQ ID NO:1;

b) an allelic variant of an isolated nucleic acid molecule comprising[part or all of] SEQ ID NO:1;

c) a segment of SEQ ID NO: 1 selected from the group consisting of:

an open reading frame located between nucleotides 358 and 495;

an open reading frame located between nucleotides 443 and 676;

an open reading frame located between nucleotides 582 and 850;

an open reading frame located between nucleotides 753 and 858;

an open reading frame located between nucleotides 885 and 1047;

an open reading frame on the complementary strand of SEQ ID NO:1 located between nucleotides 757 and 561;

an open reading frame on the complementary strand of SEQ ID NO: 1 located between nucleotides 419 and 312 [a natural mutant of SEQ ID NO:1];

d) an allelic variant of the segment of SEQ ID NO:1;

e) a sequence that hybridizes with any of the sequences of a) - d) or its complement under high stringency conditions [hybridizing with part or all of SEQ ID NO:1 or its complement and encoding a polypeptide substantially the same as any of the polypeptides encoded by SEQ ID NO:1]; and

f) a sequence encoding [part or all of] a polypeptide having an amino acid sequence comprising any one of [selected from the group consisting of] SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID

14. (Amended) A non-mammalian cell transformed with the recombinant DNA molecule of claim 13.

15. (Amended) The cell of claim 14, wherein said cell is either [selected from the group consisting of] bacterial[cells], insect, yeast, or [cells and]plant [cells].

25. (Amended) A transgenic epiphytic bacterium that expresses a portion of an AVR1-CO39 gene which confers[effective to confer] rice cultivar CO39-specific avirulence to microorganisms expressing the gene.

26. (Amended) The transgenic epiphytic bacterium of claim 25[24], which expresses the amino acid sequence of SEQ ID NO:4[ORF3 of SEQ ID NO:1], or an allelic variant thereof[a functional equivalent].

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UNDER 37 C.F.R. 1.8(a)

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